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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,495	04/01/2004	Guy F. Hudson	500155.07	2315

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Mark W. Roberts, Ph.D.
DORSEY & WHITNEY LLP
Suite 3400
1420 Fifth Avenue
Seattle, WA 98101

EXAMINER

MACARTHUR, SYLVIA

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 05/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/817,495

Applicant(s)

HUDSON, GUY F.

Examiner

Sylvia R. MacArthur

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 70-100 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 70-100 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

22

DETAILED ACTION

Claim Objections

1. Claims 77 and 78 are objected to because of the following informalities: The term "first" in line 2 should read "second". Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 70, 71, 85, 86, and 90 are rejected under 35 U.S.C. 102(e) as being anticipated by Iida et al (US 6,106,728).

Iida et al teaches an apparatus for manufacturing CMP slurry.

Regarding claim 70: Fig. 1 illustrates a planar zing machine 1 which includes a table for carrying a polishing pad, a carrier assembly wherein the carrier head is translatable with the substrate assembly across the pad. The apparatus further comprises a slurry manufacturing assembly with a first feed line (Fop line entering element 60), a second feed line S', a first removal unit 4, a combination feed line (Fop line leaving element 60), and a slurry dispenser 301. Note the first and second abrasive particles are different.

Art Unit: 1763

Regarding claim 71: The first removal unit comprises a first filtration unit (filter 4) see col. 5 lines 18-27.

Regarding claim 85: The apparatus further comprises a mixing unit 60

Regarding claim 86: A turbulent zone (provided by agitator 53) is provided to mix the combined flow.

Regarding claim 90: See the rejection of claims 70, 85, and 86.

4. Claims 72, 75, and 76 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Iida et al (US 6,106,728).

Regarding claim 72: Iida teaches that filter 4 removes particles of 10-200 microns. This citation anticipates greater than 1.0 micron.

Alternatively, Iida et al teaches another filter 7 that removes particles greater than 0.5 microns. The motivation to provide a filter that removes particles greater than 1.0 micron is that the filter particle size is chosen based on of the particle distribution of the slurry, which is an optimizable processing parameter. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a filter in the apparatus of Iida et al that removes particles of 1.0 microns and greater.

Regarding claim 75: Iida teaches that filter 4 removes particles of 10-200 microns. This citation anticipates greater than 0.8 microns.

Alternatively, Iida et al teaches another filter 7 that removes particles greater than 0.5 microns. The motivation to provide a filter that removes particles greater than 0.8

Art Unit: 1763

microns is that the filter particle size is chosen based on of the particle distribution of the slurry, which is an optimizable processing parameter. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a filter in the apparatus of Iida et al that removes particles of 0.8 microns and greater.

Regarding claim 76: Iida teaches that filter 4 removes particles of 10-200 microns. This citation anticipates greater than 0.3microns.

Alternatively, Iida et al teaches another filter 7 than removes particles greater than 0.5 microns. The motivation to provide a filter that removes particles greater than 0.3 microns is that the filter particle size is chosen based of the particle distribution of the slurry, which is an optimizable processing parameter. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a filter in the apparatus of Iida et al that removes particles of 0.3 microns and greater.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 73,74,77-84, 87-89 and 91-100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida et al (US 6,106,728).

The teachings of Iida et al were discussed above.

Regarding claim 73 and 91: Iida fails to teach a second filtration unit coupled to the second feed line.

However the duplication of parts was held to have been obvious according to In Re Harza. Filters are known suitable means of removing particles and agglomerates. Iida teaches the use of two filters 4 and 7. It would have been obvious at the time of the claimed to utilize a filter on both the recycled slurry S and the S' to prevent contamination due to the agglomeration of particles in the slurry feeds.

Regarding claims 74-84 and 92-97: The particle size distribution of the filter depends upon the particle size of the slurry feeds which is an optimizable processing parameter. Thus, it would have been obvious for one of ordinary skill in the art to provide filters that meets the particle size requirements of claims 74-84 and 92-97.

Regarding claims 87-89 and 98-100: Iida et al provides a volume control unit in tank 6 via the concentration meter 62. As discussed in col.7 lines 47-62.

The specific mixing ratio of the mixture is not taught however the apparatus of Iida et al is obviously able to perform the ratios cited in the claims so that the fluctuation in concentration will not change the viscosity of the slurry and hinder a stable polishing process. In the cited passage Iida et al discusses the feed is changed to maintain a desired concentration; affecting the volume or volume ratio of feeds to the tank performs this change. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a volume control unit in tank 6 of Iida et al that meets the desired mixing result.

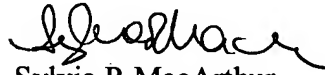
Conclusion

Art Unit: 1763

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the core hours of 9 a.m. and 3 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sylvia R MacArthur
Patent Examiner
Art Unit 1763

May 24, 2005